Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-180

DDG 51 Arleigh Burke Class Guided Missile Destroyer (DDG 51)

As of FY 2019 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

This document contains information that may be exempt from mandatory disclosure under the FOIA.

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Sensitivity Originator

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Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name
DDG 51 Arleigh Burke Class Guided Missile Destroyer (DDG 51)

DoD Component
Navy

Responsible Office

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Date Assigned: August 14, 2016

References

SAR Baseline (Production Estimate)

Decision Coordinating Paper #1337 Revision 1, Change 1 of August 22, 1986

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 31, 2017

Mission and Description

The DDG 51 Arleigh Burke Class Guided Missile Destroyer (DDG 51) is a multi-mission guided missile destroyer designed to operate offensively and defensively, independently, or as units of Carrier Strike Groups, Expeditionary Strike Groups, and Missile Defense Action Groups in multi-threat environments that include air, surface, and subsurface threats. These ships will respond to Low Intensity Conflict/Coastal and Littoral Offshore Warfare scenarios as well as open ocean conflict providing or augmenting power projection, forward presence requirements, and escort operations at sea.

The DDG 51 Class comprises four separate variants or "Flights." DDGs 51–71 represent the original design and are designated as Flight I ships, whereas DDGs 72–78 are designated as Flight II ships and included capability upgrades such as the Joint Tactical Information Distribution System (JTIDS) Command and Control Processor, Combat Direction Finding, the Tactical Information Exchange System (TADIX B), SLQ-32(V)3, and the capability to launch and control the SM-2 Block IV Extended Range Missile. Flight IIA ships introduced new capabilities including Cooperative Engagement Capability (CEC) and a MK-45 Gun providing improved air and anti-missile defense and land attack. Flights III upgrades are centered on the Air and Missile Defense Radar (AMDR) AN/SPY-6(V)1 that enables Flight III ships to simultaneously perform Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD), which satisfies the Navy's critical need for an enhanced surface combatant Integrated Air and Missile Defense (IAMD) capability.

The DDG 51 Class ships provide outstanding combat capability and survivability characteristics while considering procurement and lifetime support costs. They feature extraordinary seakeeping and low observability characteristics. The DDG 51 features the AEGIS Weapon System (AWS), which has quick reaction time, high firepower, and improved Electronic Countermeasures capability in Anti-Air Warfare (AAW). The ships' Anti-Submarine Warfare (ASW) System provides superior long range multi-target detection and engagement capability with two embarked Light Airborne MultiPurpose System MK-III helicopters (DDG 79 and follow-on ships). The Advanced Tomahawk Weapon Control System (DDGs 79-95) and the Tactical Tomahawk Weapons Control System (DDG 96 and follow-on ships) allow employment of multiple variants of Tomahawk missiles for strike warfare. The MK-45 gun weapon system provides significant capability for surface warfare, land attack, and air defense. The CEC is being installed on DDG 51 Class Ships to promote Network Centric Warfare capability. The AWS is the heart of an integrated combat system that provides area coverage and command/control focus in all dimensions of Naval Warfighting and Joint Military Operations: AAW; ASW; Anti-Surface Warfare; Command, Control, Communications, Computers & Intelligence; and Strike Warfare. DDG 113 and follow ships will provide IAMD and work with other BMD assets.

The AWS for Flight III comprises the AN/SPY-6(V)1 radar system, Command and Decision System MK 2, Weapons Control System MK 7, Missile Fire Control System MK 99, Operational Readiness and Test System MK 9, AEGIS Display System MK 2, AEGIS Computer Programs, Advanced Training Domain, and Logistic Support System.

Executive Summary

Program Highlights Since Last Report

The DDG 51 Program has successfully delivered 65 ships since program inception in 1985. The program is currently in serial production with eight ships under construction and a total of 12 under contract at two current DDG 51 class shipbuilders, Huntington Ingalls, Inc. (HII) and General Dynamics Bath Iron Works (BIW) as of this report date.

The Navy has instituted several initiatives to continually manage cost associated with DDG 51 Class ships including the increased use of competitive contracts in lieu of sole source contracts. Other cost savings initiatives include the use of competitive Multi-Year Procurement (MYP) contracts, refurbished assets from retiring Navy ships and leveraging Government Furnished Equipment (GFE) contracts across multiple ship classes to obtain better prices across the Navy.

The Navy is currently procuring Flight III ships which will provide enhanced surface combatant Integrated Air Missile Defense (IAMD) capability. The Flight III baseline consists of the integration of the AN/SPY-6(V)1 radar along with upgrades to the electrical power and cooling capacity plus additional associated changes. The Flight III baseline will begin with DDGs 125-126 (FY 2017 hulls) and will continue with DDG 128 (FY 2018) and follow. The first Flight III ship contract (DDG 125) was awarded to HII on June 27, 2017. BIW was awarded the next Flight III ship contract (DDG 126) on September 28, 2017. Flight III design efforts are on track to support start of construction for the first Flight III DDG 51 ship in early 2018.

In PB 2018, the Navy requested MYP authority for FY 2018 - FY 2022 DDG 51 Flight III ships to be competitively awarded between the two DDG 51 class shipbuilders, with contract award planned in FY 2018. The MYP will continue the procurement for the proven DDG 51 Class shipbuilding program, leveraging competition, a strong industrial base and a stable design in order to achieve savings.

The PB 2019 budget requests $5,292.7M Full Funding for three ships in FY 2019; $391.9M in Economic Order Quantity funds to procure ship construction material and Vertical Launching System (VLS) components; and $54.0M Cost to Complete funds for DDG 117, 118, and 120.

On January 8, 2018, USD(AT&L) issued an ADM delegating the Milestone Decision Authority for the DDG 51 program to the Secretary of the Navy, thereby recategorizing the program from ACAT ID to ACAT IC.

The DDG 51 Class Program has achieved the following significant production milestones since the last report:

- DDG 113 (JOHN FINN) Sail Away completed June 2, 2017.
- DDG 113 (JOHN FINN) Commissioned July 15, 2017.
- DDG 114 (RALPH JOHNSON) conducted ALPHA/BRAVO Trials July 20, 2017.
- DDG 114 (RALPH JOHNSON) conducted Acceptance (CHARLIE) Trials September 14, 2017.
- DDG 114 (RALPH JOHNSON) delivered on November 15, 2017.
- DDG 115 (RAFAEL PERALTA) delivered on February 3, 2017.
- DDG 115 (RAFAEL PERALTA) Sail Away completed April 28, 2017.
- DDG 115 (RAFAEL PERALTA) Commissioned July 29, 2017.
- DDG 116 (THOMAS HUDNER) AEGIS Light Off completed April 9, 2017.
- DDG 116 (THOMAS HUDNER) conducted Launch/Float Off April 23, 2017.
- DDG 117 (PAUL IGNATIUS) was Christened April 8, 2017.
- DDG 117 (PAUL IGNATIUS) AEGIS Light Off completed July 10, 2017.
- DDG 119 (DELBERT BLACK) conducted Launch/Float Off September 8, 2017.
- DDG 119 (DELBERT BLACK) was Christened November 4, 2017.
- DDG 122 (JOHN BASILONE) Started Fabrication on September 29, 2017.
- DDG 123 (LENAH H. SUTCLIFFE HIGBEE) Lay Keel on November 6, 2017.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
May 1978	The Chief of Naval Operations (CNO) initiated DDGX Study Group to establish the requirements for the next generation of surface combatants.
October 1979	DDGX Project Office (93X) established in NAVSEA.
February 1980	Surface Force Level-CNO Executive Board (CEB) promulgated.
February 1980	Surface Combatant CEB Decision Memorandum (Milestone 0).
June 1981	Department of the Navy Systems Acquisition Review Council (DNSARC) reviewed the DDGX Program.
September 1981	Requirement for a DSARC at Milestone I waived by SECDEF.
December 1981	DDGX re-designated DDG 51.
May 1982	DDG 51 Project Office was transferred from the Surface Ship Warfare Directorate (SEA 93X) into the AEGIS Shipbuilding Project Office as the Destroyer Division (PMS 400D).
November 1982	Secretary of the Navy (SECNAV) named DDG 51 "ARLEIGH BURKE".
December 1982	Preliminary Design completed.
May 1983	Contract Design initiated to support competitive selection of the lead shipbuilder in early FY 1985.
December 1983	The Secretary of Defense (SECDEF) Decision Memorandum authorized Program to proceed (Milestone II).
December 1984	SECDEF approved DDG 51 Acquisition Strategy for Flight I as part of the Program's Milestone II decision.
April 1985	Lead ship (DDG 51) contract awarded to Bath Iron Works Corporation (BIW).
1st Quarter FY 1986	Ships Characteristics Improvement Board (SCIB) approved the first upgrade to the DDG 51 Class ship configuration, designated Flight II, and implemented in the last ship in FY 1992.
October 1986	Approval of Milestone IIIA and Approval for Limited Production (ALP) for FY 1987 through FY 1989 (for three FY 1987 ships, three FY 1988, three 1989, and advance procurement of long lead material for three FY 1990 ships) granted by Assistant Secretary of the Navy for Shipbuilding and Logistics (ASN (S&L)) Program Decision Memorandum.
May 1987	Follow ship (DDG 52) awarded to Ingalls Shipbuilding, Incorporated.
February 1988	DDG 51 Class APB approved.
August 1989	ALP extended for DDG 51 Class ships and systems for which funds were appropriated through FY 1990, and long lead material for FY 1991 ships and systems by ASN (S&L) Program Decision Memorandum.
August 1990	SECDEF Major Warship Review (MWR) decision approved procurement of four DDG 51 Class ships per year starting in FY 1991.
January 1991	Continued production of the DDG 51 Class ships through FY 1991 approved by the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN (RD&A)) Program Decision Memorandum.
April 1991	Lead ship (DDG 51) delivered to Navy.
1st Quarter FY 1992	Upgrade for Flight II was introduced into DDG 72 in FY 1992 and was awarded to BIW as the lead yard.
April 1992	Continued production of the DDG 51 Class ships through FY 1992 approved by ASN (RD&A)

	Program Decision Memorandum.
July 1992	The Deputy Under Secretary of Defense (Acquisition) Memorandum established the DDG 51 Class Flight IIA variant as an ACAT ID program.
October 1992	DDG 52 delivered to Navy.
January 1993	Continued production of the DDG 51 Class ships and AN/SPY-1D radar system through FY 1993 approved by ASN (RD&A) Program Decision Memorandum.
February 1993	Initial Operating Capability achieved.
February 1994	DDG 51 Class Acquisition Strategy, Revision 1, was approved by Under Secretary of Defense for Acquisition and Technology (USD (A&T)) as part of the part of the Defense Acquisition Board's (DAB) Milestone IV Program Review prior to implementing Flight IIA.
April 1994	DDG Flight IIA ORD, Revision 1, Serial No. 336(1)-86-94.
July 1994	Flight IIA design awarded to BIW as lead yard for DDG 79.
July 1995	USD (A&T) re-designated the DDG 51 Ship Acquisition Program as an ACAT IC program.
March 1998	FY 1998 - FY 2001 Multi-Year Procurement (MYP) contracts awarded to BIW and Ingalls Shipbuilding.
April 2001	DDG 51 FY 2002 - FY 2004 MYP Acquisition Plan approved.
September 2002	FY 2002 - FY 2005 MYP contracts awarded to BIW and Ingalls Shipbuilding.
August 2005	DDG Flight IIA ORD, Revision 1 Serial No. 336(1)-86-94, Amended by Vice Chief of Naval Operations (VCNO) ltr Ser No. N09/484.
4th Quarter FY 2008	Navy announced decision to truncate the DDG 1000 Program at three ships and to continue production of the DDG 51 Class Program based on the changed threat assessment.
January 2009	USD (AT&L) Memorandum directed re-start of DDG 51 production through FY 2011, with an increase from 62 to 65 ships.
June 2009	DDG 51 Class Acquisition Strategy, Revision 2, approved by ASN (RD&A) reflecting continuing production of the DDG 51 Program and procurement of three additional ships (one in FY 2010 and two in FY 2011).
June 2011	First FY 2010 restart ship, DDG 113, awarded to Huntington Ingalls Industries (HII - formerly Ingalls Shipbuilding).
September 2011	DDG 51 Program Acquisition Strategy, Revision 2 with Addendum to reflect one ship in FY 2012, was approved by USD (AT&L).
September 2011	FY 2011 ships awarded to BIW and HII (one each). DDG 115 is first restart ship at BIW.
June 2012	DDG 51 Program Acquisition Strategy updated to reflect FY 2013 – FY 2017 MYP approved by USD (AT&L) to include introduction of Flight III in FY 2016 and FY 2017.
July 2012	USD (AT&L) established as Milestone Decision Authority for DDG 51 as an ACAT ID program.
June 2013	FY 2013 - FY 2017 MYP contracts awarded to BIW and HII.
May 2014	DDG 51 Class Acquisition Strategy Addendum for Air and Missile Defense Radar Incorporation (Flight III) approved.
October 2014	DDG 51 Flight III Capabilities Development Document validated by the Joint Requirements Oversight Council (JROC).
November 2016	DDG 51 Flight III Critical Design Review completed.
December 2016	First restart ship at HII, DDG 113, delivered to Navy.
February 2017	First restart ship at BIW, DDG 115, delivered to Navy.
June 2017	USD (AT&L) approves production of DDG 51 Flight III design and authorizes award of contracts for

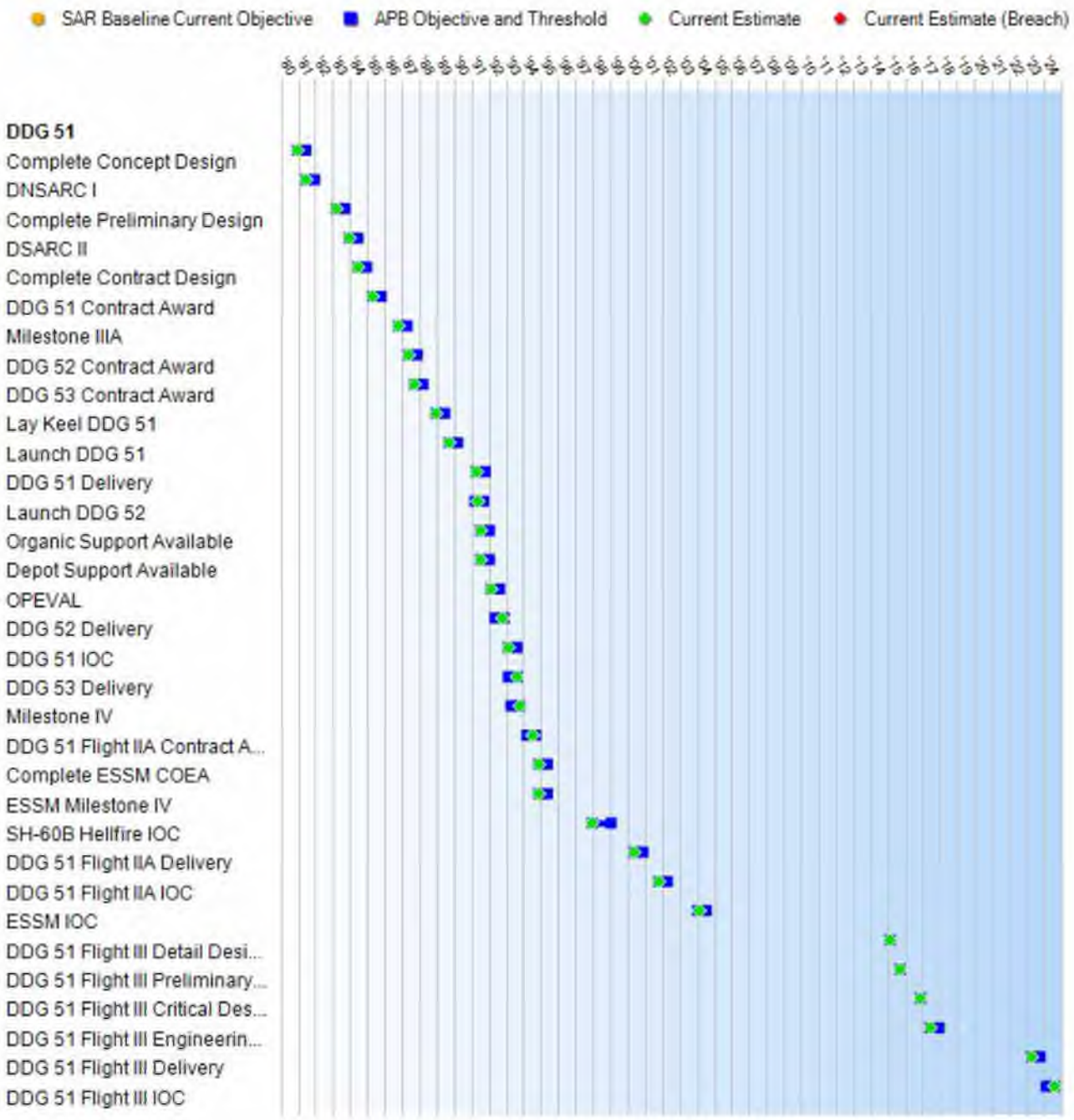
	the first DDG 51 Flight III ships.
June 2017	HII awarded Flight III Engineering Change Proposal for DDG 125 (FY 2017 ship).
August 2017	Acquisition Program Baseline update to reflect Flight III ships approved by USD (AT&L).
September 2017	Acquisition Strategy Third Addendum for procurement of one FY 2016 Flight IIA Ship approved by USD (AT&L).
September 2017	BIW awarded Flight III ECP ship for DDG 126 (FY 2017 ship) and a construction contract for the congressionally-added third FY 2016 ship, DDG 127, as a Flight IIA.
January 2018	USD (AT&L) redesignated the DDG 51 Ship Acquisition Program as an ACAT IC program.

Threshold Breaches

APB Breaches		
Schedule		☐
Performance		☐
Cost	RDT&E	☐
	Procurement	☐
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☐
	APUC	☐

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule


SAR Baseline Current Objective
APB Objective and Threshold
Current Estimate
Current Estimate (Breach)
DDG 51
Complete Concept Design
DNSARC I
Complete Preliminary Design
DSARC II
Complete Contract Design
DDG 51 Contract Award
Milestone IIIA
DDG 52 Contract Award
DDG 53 Contract Award
Lay Keel DDG 51
Launch DDG 51
DDG 51 Delivery
Launch DDG 52
Organic Support Available
Depot Support Available
OPEVAL
DDG 52 Delivery
DDG 51 IOC
DDG 53 Delivery
Milestone IV
DDG 51 Flight IIA Contract A...
Complete ESSM COEA
ESSM Milestone IV
SH-60B Hellfire IOC
DDG 51 Flight IIA Delivery
DDG 51 Flight IIA IOC
ESSM IOC
DDG 51 Flight III Detail Desi...
DDG 51 Flight III Preliminary...
DDG 51 Flight III Critical Des...
DDG 51 Flight III Engineerin...
DDG 51 Flight III Delivery
DDG 51 Flight III IOC

Schedule Events					
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	
Complete Concept Design	N/A	Dec 1980	Jun 1981	Dec 1980	
DNSARC I	Jun 1981	Jun 1981	Dec 1981	Jun 1981	
Complete Preliminary Design	N/A	Mar 1983	Sep 1983	Mar 1983	
DSARC II	Dec 1983	Dec 1983	Jun 1984	Dec 1983	
Complete Contract Design	N/A	Jun 1984	Dec 1984	Jun 1984	
DDG 51 Contract Award	Apr 1985	Apr 1985	Oct 1985	Apr 1985	
Milestone IIIA	Oct 1986	Oct 1986	Apr 1987	Oct 1986	
DDG 52 Contract Award	Jan 1987	May 1987	Nov 1987	May 1987	
DDG 53 Contract Award	N/A	Sep 1987	Mar 1988	Sep 1987	
Lay Keel DDG 51	N/A	Dec 1988	Jun 1989	Dec 1988	
Launch DDG 51	N/A	Sep 1989	Mar 1990	Sep 1989	
DDG 51 Delivery	N/A	Apr 1991	Oct 1991	Apr 1991	
Launch DDG 52	N/A	Mar 1991	Sep 1991	May 1991	
Organic Support Available	N/A	Jul 1991	Jan 1992	Jul 1991	
Depot Support Available	N/A	Jul 1991	Jan 1992	Jul 1991	
OPEVAL	N/A	Feb 1992	Aug 1992	Feb 1992	
DDG 52 Delivery	N/A	May 1992	Nov 1992	Oct 1992	
DDG 51 IOC	Oct 1990	Feb 1993	Aug 1993	Feb 1993	
DDG 53 Delivery	N/A	Feb 1993	Aug 1993	Aug 1993	
Milestone IV	N/A	Apr 1993	Oct 1993	Oct 1993	
DDG 51 Flight IIA Contract Award	N/A	Mar 1994	Sep 1994	Jul 1994	
Complete ESSM COEA	N/A	Nov 1994	May 1995	Nov 1994	
ESSM Milestone IV	N/A	Nov 1994	May 1995	Nov 1994	
SH-60B Hellfire IOC	N/A	Dec 1997	Jan 1999	Dec 1997	
DDG 51 Flight IIA Delivery	N/A	May 2000	Nov 2000	May 2000	
DDG 51 Flight IIA IOC	N/A	Oct 2001	Apr 2002	Oct 2001	
ESSM IOC	N/A	Jan 2004	Jul 2004	Feb 2004	
DDG 51 Flight III Detail Design Contract Award	N/A	Feb 2015	Feb 2015	Feb 2015	(Ch-1)
DDG 51 Flight III Preliminary Design Review	N/A	Sep 2015	Sep 2015	Sep 2015	(Ch-1)
DDG 51 Flight III Critical Design Review	N/A	Nov 2016	Nov 2016	Nov 2016	(Ch-1)
DDG 51 Flight III Engineering Change Proposal Contract Award	N/A	Jun 2017	Dec 2017	Jun 2017	(Ch-1)
DDG 51 Flight III Delivery	N/A	Apr 2023	Oct 2023	Apr 2023	(Ch-1)
DDG 51 Flight III IOC	N/A	Feb 2024	Aug 2024	Aug 2024	(Ch-1)

Change Explanations

(Ch-1) The current estimates for DDG 51 Flight III milestones include Flight III Detail Design Contract Award, Preliminary Design Review, Critical Design Review, Engineering Change Proposal Contract Award, DDG Flight III Delivery and IOC which have been added as milestones in the APB dated August 25, 2017.

Notes

Planned Delivery Dates for DDG 51 Ships

DDG 116: April 2018

DDG 117: October 2018

DDG 118: December 2019

DDG 119: May 2019

DDG 120: October 2020

DDG 121: May 2020

DDG 122: July 2021

DDG 123: July 2021

DDG 124: June 2022

DDG 127: November 2022

DDG 125: April 2023

DDG 126: June 2024

* Note: DDG 123, 124, 125, 126 , and 127 reflect contract milestone dates.

Acronyms and Abbreviations

COEA - Cost and Operational Effectiveness Analysis
DNSARC - Department of the Navy System Acquisition Review Council
DSARC - Defense System Acquisition Review Council
ESSM - Evolved Sea Sparrow Missile
OPEVAL - Operational Evaluation

Performance

Performance Characteristics				
SAR Baseline Production Estimate	**Current APB Production Objective/Threshold**		**Demonstrated Performance**	**Current Estimate**
SHIP:				
Length (ft)				
466	N/A	N/A	Baseline Dependent	Baseline Dependent
Beam (ft)				
59	N/A	N/A	59	59
Navigational Draft (ft)				
30.6	N/A	N/A	31.0	31.0
Displacement (long tons)				
8300	N/A	N/A	9300	9300
Propulsion LM (Gas Turbine)				
2500	N/A	N/A	2500	2500
Accommodations				
341	N/A	N/A	314	314
MOBILITY:				
Speed (knots)				
30	30	30	30	30
Armament				
Anti-Submarine Warfare				
ASW System				
AN/SQQ-89	N/A	N/A	AN/SQQ-89	AN/SQQ-89
ASROC				
VLA	N/A	N/A	VLA	VLA
Helo				
SEAHAWK; LAMPS	2 EMBARKEDHELOS	2 EMBARKEDHELOS	2 Embarked Helos	2 Embarked Helos
Anti-Air Warfare				
Launchers				
MK 41 VLS	N/A	N/A	MK 41 VLS	MK 41 VLS
Missiles				
SM-2 MR	N/A	N/A	SM-2 MR/SM-	SM-2 MR/SM-

			3/ESSM	3/ESSM	
Missile Fire Control System					
3 MK 99	N/A	N/A	3 MK 99	3 MK 99	
Guns					
2 PHALANX	N/A	N/A	2 PHALANX	2 PHALANX	
Anti-Surface/Strike Warfare					
Guns					
1 5"/54	N/A	N/A	1 5"/62	1 5"/62	
Gunfire Control System					
MK 160	N/A	N/A	MK 160	MK 160	
Anti-Ship Cruise Missile					
HARPOON	N/A	N/A	N/A	N/A	
Cruise Missile					
TOMAHAWK	N/A	N/A	TOMAHAWK	TOMAHAWK	
Electronic Warfare					
SLQ-32 SRBOC	N/A	N/A	SLQ-32, SRBOC, Combat DF	SLQ-32, SRBOC, Combat DF	
Radars					
Surface					
SPS-67	N/A	N/A	SPS-67	SPS-67/SPQ-9B	
3D					
SPY-1D	N/A	N/A	SPY-1D (V)	SPY-1D (V)/SPY-6	
Cost (Flight III BY14$B)					
N/A	$1.9	$2.1	TBD	$1.8	(Ch-1)
Energy (Flight III Fuel Consumption BBL/168 hours)					
N/A	5,500	8,500	TBD	8,500	(Ch-1)
Annual Energy (Flight III Fuel Consumption) BBL per ship, per year					
N/A	90,000	115,000	TBD	115,000	(Ch-1)
Schedule (IOC first Flight III ship)					
N/A	2nd Quarter FY 2024	4th Quarter FY 2024	TBD	4th Quarter FY 2024	(Ch-1)
Space (Flight III - Square feet of Unassigned Arrangeable Area)					
N/A	400	0	TBD	0	(Ch-1)
Weight SLA (Flight III Full Load Displacement in Long Tons)					
N/A	at least 10 percent	at least 5 percent	TBD	at least 5 percent	(Ch-1)
Power SLA (Flight III MW remaining)					
N/A	at least 1.435	at least 1.125	TBD	at least 1.125	(Ch-1)
Cooling SLA (Flight III Rtons remaining)					

N/A	110	(T=O) 110	TBD	110	(Ch-1)
Sustainment (Flight III Material Availability)					
N/A	at least 63 percent	at least 52 percent	TBD	at least 52 percent	(Ch-1)
Sustainment (Flight III Operational Availability)					
N/A	at least 87 percent	at least 72 percent	TBD	at least 72 percent	(Ch-1)
Vertical Launching System (Flight III cells)					
N/A	96	(T=O) 96	TBD	96	(Ch-1)
Endurance (Flight III - Nm)					
N/A	5,000	4,000	TBD	4,000	(Ch-1)
Manpower (Flight III)					
N/A	No greater than 297 (with accommodations for 380)	No greater than 318 (with accommodations for 359)	TBD	No greater than 318 (with accommodations for 359)	(Ch-1)
Warfare Commander (Flight III)					
N/A	12 watch standers (9 officer/3 enlisted), 4 consoles, 1 PC Chat, Single Office/Planning Space	2 consoles, 1 PC Chat (Dual Use Space)	TBD	2 consoles, 1 PC Chat (Dual use space)	(Ch-1)

Classified Performance information is provided in the classified annex to this submission.

Requirements Reference

ORD dated April 15, 1994 and the DDG 51 Flight III CDD, October 28, 2014

Change Explanations

(Ch-1) DDG 51 Flight III Performance Parameters including Cost, Energy, Annual Energy, Schedule, Space, Weight SLA, Power SLA, Cooling SLA, Sustainment, VLS cells, Endurance, Manpower and Warfare Commander have been added since the last SAR. These changes reflect Flight III performance parameters approved in the APB dated August 25, 2017.

Acronyms and Abbreviations

ASROC - Anti-Submarine Rocket
ASW - Anti-Submarine Warfare
BBL - Barrels
BY - Base Year
DF - Direction Finding
ESSM - Evolved Sea Sparrow Missile
FLT - Flight
ft - Feet
FTM - Flight Test Mission
HELO - Helicopter
IOC - Initial Operating Capability
MK - Mark
MR - Medium Range
NM - Nautical Miles
Rtons - Refrigeration Tons
SLA - Service Life Allowance
SM-2 - Standard Missile 2
SM-3 - Standard Missile 3
SRBOC - Super Rapid Blooming Off-Board Chaff
TEMP - Test & Evaluation Master Plan
VLA - Vertical Launching ASROC (Anti-Submarine Rocket)
VLS - Vertical Launching System
YDS - Yards

Track to Budget

RDT&E

Appn		BA	PE	
Navy	1319	04	0603564N	
	Project		**Name**	
	0409		DDG-51 Flt III Concept Development	(Sunk)
Navy	1319	05	0604303N	
	Project		**Name**	
	1776		AEGIS Weapon System Mods	(Sunk)
Navy	1319	05	0604307N	
	Project		**Name**	
	1447		Surf Combatant Combat System Imp	(Shared)

Procurement

Appn		BA	PE	
Navy	1611	02	0204222N	
	Line Item		**Name**	
	2122		DDG-51	(Shared)
Navy	1611	05	0204222N	
	Line Item		**Name**	
	5110		Outfitting	(Shared)
	5300		Completion of PY Shipbuilding Programs	(Shared)

MILCON

Appn		BA	PE	
Navy	1205		0204228N	
	Project		**Name**	
	263		AEGIS Computer Center Building Addition	(Sunk)
Navy	1205		0605896N	
	Project		**Name**	
	261		Battle Force Combatant Education Facility	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 1987 $M			BY 1987 $M	TY $M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	979.8	3504.1	3854.5	3542.4	916.6	4915.6	4987.5
Procurement	15948.3	64949.2	71444.1	69222.8	19173.1	106171.0	116715.9
Flyaway	--	--	--	69222.8	--	--	116715.9
Recurring	--	--	--	68116.5	--	--	115170.5
Non Recurring	--	--	--	1106.3	--	--	1545.4
Support	--	--	--	0.0	--	--	0.0
Other Support	--	--	--	0.0	--	--	0.0
Initial Spares	--	--	--	0.0	--	--	0.0
MILCON	25.6	37.6	41.4	37.6	27.8	44.5	44.5
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	16953.7	68490.9	N/A	72802.8	20117.5	111131.1	121747.9

Current APB Cost Estimate Reference

Department of the Navy Component Cost Position for the DDG 51 Arleigh Burke Class Guided Missile Destroyer. The O&S cost estimates include mid-life modernization for Flight III ships. The Component Cost Position is dated March 10, 2017

Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	23	89	95
Total	23	89	95

Cost and Funding

Funding Summary

Appropriation Summary FY 2019 President's Budget / December 2017 SAR (TY$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	3917.2	195.1	189.5	185.9	168.1	169.1	154.1	8.5	4987.5
Procurement	83156.5	3725.6	5772.3	4001.5	5249.5	5312.3	5441.0	4057.2	116715.9
MILCON	44.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.5
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2019 Total	87118.2	3920.7	5961.8	4187.4	5417.6	5481.4	5595.1	4065.7	121747.9
PB 2018 Total	87180.2	3920.7	4105.4	4053.7	3660.6	3717.4	4075.1	418.0	111131.1
Delta	-62.0	0.0	1856.4	133.7	1757.0	1764.0	1520.0	3647.7	10616.8

Quantity Summary FY 2019 President's Budget / December 2017 SAR (TY$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	77	2	3	2	3	3	3	2	95
PB 2019 Total	0	77	2	3	2	3	3	3	2	95
PB 2018 Total	0	77	2	2	2	2	2	2	0	89
Delta	0	0	0	1	0	1	1	1	2	6

Cost and Funding

Annual Funding By Appropriation

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1980	--	--	--	--	--	--	10.5
1981	--	--	--	--	--	--	35.3
1982	--	--	--	--	--	--	102.0
1983	--	--	--	--	--	--	150.7
1984	--	--	--	--	--	--	121.1
1985	--	--	--	--	--	--	138.8
1986	--	--	--	--	--	--	93.5
1987	--	--	--	--	--	--	100.4
1988	--	--	--	--	--	--	93.4
1989	--	--	--	--	--	--	52.3
1990	--	--	--	--	--	--	41.2
1991	--	--	--	--	--	--	87.5
1992	--	--	--	--	--	--	87.2
1993	--	--	--	--	--	--	110.6
1994	--	--	--	--	--	--	102.7
1995	--	--	--	--	--	--	89.6
1996	--	--	--	--	--	--	87.3
1997	--	--	--	--	--	--	82.5
1998	--	--	--	--	--	--	78.3
1999	--	--	--	--	--	--	155.4
2000	--	--	--	--	--	--	232.6
2001	--	--	--	--	--	--	143.5
2002	--	--	--	--	--	--	230.7
2003	--	--	--	--	--	--	199.0
2004	--	--	--	--	--	--	135.3
2005	--	--	--	--	--	--	126.0
2006	--	--	--	--	--	--	113.4
2007	--	--	--	--	--	--	69.2
2008	--	--	--	--	--	--	37.4
2009	--	--	--	--	--	--	8.7
2010	--	--	--	--	--	--	16.8
2011	--	--	--	--	--	--	42.5
2012	--	--	--	--	--	--	48.8
2013	--	--	--	--	--	--	62.1
2014	--	--	--	--	--	--	86.3

2015	--	--	--	--	--	--	125.7
2016	--	--	--	--	--	--	243.4
2017	--	--	--	--	--	--	175.5
2018	--	--	--	--	--	--	195.1
2019	--	--	--	--	--	--	189.5
2020	--	--	--	--	--	--	185.9
2021	--	--	--	--	--	--	168.1
2022	--	--	--	--	--	--	169.1
2023	--	--	--	--	--	--	154.1
2024	--	--	--	--	--	--	8.5
Subtotal	--	--	--	--	--	--	4987.5

Annual Funding 1319 | RDT&E | Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 1987 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1980	--	--	--	--	--	--	14.0
1981	--	--	--	--	--	--	43.1
1982	--	--	--	--	--	--	118.3
1983	--	--	--	--	--	--	167.3
1984	--	--	--	--	--	--	129.8
1985	--	--	--	--	--	--	144.2
1986	--	--	--	--	--	--	94.4
1987	--	--	--	--	--	--	98.5
1988	--	--	--	--	--	--	88.7
1989	--	--	--	--	--	--	47.6
1990	--	--	--	--	--	--	36.1
1991	--	--	--	--	--	--	73.9
1992	--	--	--	--	--	--	71.6
1993	--	--	--	--	--	--	88.7
1994	--	--	--	--	--	--	80.9
1995	--	--	--	--	--	--	69.2
1996	--	--	--	--	--	--	66.3
1997	--	--	--	--	--	--	61.9
1998	--	--	--	--	--	--	58.3
1999	--	--	--	--	--	--	114.3
2000	--	--	--	--	--	--	168.7
2001	--	--	--	--	--	--	102.7
2002	--	--	--	--	--	--	163.4
2003	--	--	--	--	--	--	138.9
2004	--	--	--	--	--	--	91.9
2005	--	--	--	--	--	--	83.4
2006	--	--	--	--	--	--	72.8
2007	--	--	--	--	--	--	43.3
2008	--	--	--	--	--	--	23.0
2009	--	--	--	--	--	--	5.3
2010	--	--	--	--	--	--	10.1
2011	--	--	--	--	--	--	24.8
2012	--	--	--	--	--	--	28.1
2013	--	--	--	--	--	--	35.3
2014	--	--	--	--	--	--	48.4
2015	--	--	--	--	--	--	69.7
2016	--	--	--	--	--	--	132.6
2017	--	--	--	--	--	--	94.1
2018	--	--	--	--	--	--	102.8
2019	--	--	--	--	--	--	98.0

2020	--	--	--	--	--	--	94.3
2021	--	--	--	--	--	--	83.6
2022	--	--	--	--	--	--	82.4
2023	--	--	--	--	--	--	73.7
2024	--	--	--	--	--	--	4.0
Subtotal	--	--	--	--	--	--	3542.4

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	TY $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1984	--	78.5	--	--	78.5	--	78.5
1985	1	846.6	--	299.2	1145.8	--	1145.8
1986	--	98.1	--	--	98.1	--	98.1
1987	3	2326.7	--	158.2	2484.9	--	2484.9
1988	--	9.6	--	--	9.6	--	9.6
1989	4	2876.5	--	--	2876.5	--	2876.5
1990	5	3569.5	--	13.5	3583.0	--	3583.0
1991	4	3145.1	--	3.6	3148.7	--	3148.7
1992	5	3982.8	--	38.3	4021.1	--	4021.1
1993	4	3379.3	--	7.9	3387.2	--	3387.2
1994	3	2703.3	--	86.9	2790.2	--	2790.2
1995	3	2779.7	--	37.8	2817.5	--	2817.5
1996	2	2289.5	--	61.7	2351.2	--	2351.2
1997	4	3541.9	--	38.8	3580.7	--	3580.7
1998	4	3424.3	--	110.5	3534.8	--	3534.8
1999	3	2674.1	--	44.2	2718.3	--	2718.3
2000	3	2651.1	--	30.1	2681.2	--	2681.2
2001	3	3231.3	--	--	3231.3	--	3231.3
2002	3	3293.7	--	14.4	3308.1	--	3308.1
2003	2	2657.2	--	63.1	2720.3	--	2720.3
2004	3	3345.3	--	4.7	3350.0	--	3350.0
2005	3	3653.5	--	8.9	3662.4	--	3662.4
2006	--	508.6	--	--	508.6	--	508.6
2007	--	289.2	--	--	289.2	--	289.2
2008	--	94.9	--	--	94.9	--	94.9
2009	--	331.2	--	--	331.2	--	331.2
2010	1	2249.7	--	121.8	2371.5	--	2371.5
2011	2	2584.2	--	11.6	2595.8	--	2595.8
2012	1	1780.8	--	120.2	1901.0	--	1901.0
2013	3	4471.5	--	29.8	4501.3	--	4501.3
2014	1	2086.5	--	--	2086.5	--	2086.5
2015	2	2932.9	--	--	2932.9	--	2932.9
2016	3	3989.2	--	230.2	4219.4	--	4219.4
2017	2	3734.8	--	10.0	3744.8	--	3744.8
2018	2	3725.6	--	--	3725.6	--	3725.6
2019	3	5772.3	--	--	5772.3	--	5772.3
2020	2	4001.5	--	--	4001.5	--	4001.5
2021	3	5249.5	--	--	5249.5	--	5249.5
2022	3	5312.3	--	--	5312.3	--	5312.3
2023	3	5441.0	--	--	5441.0	--	5441.0

2024	2	4010.6	--	--	4010.6	--	4010.6
2025	--	31.6	--	--	31.6	--	31.6
2026	--	15.0	--	--	15.0	--	15.0
Subtotal	95	115170.5	--	1545.4	116715.9	--	116715.9

Annual Funding 1611 | Procurement | Shipbuilding and Conversion, Navy							
Fiscal Year	Quantity	BY 1987 $M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1984	--	78.5	--	--	78.5	--	78.5
1985	1	829.8	--	293.3	1123.1	--	1123.1
1986	--	94.0	--	--	94.0	--	94.0
1987	3	2179.7	--	148.2	2327.9	--	2327.9
1988	--	8.7	--	--	8.7	--	8.7
1989	4	2540.5	--	--	2540.5	--	2540.5
1990	5	3064.1	--	11.6	3075.7	--	3075.7
1991	4	2626.4	--	3.1	2629.5	--	2629.5
1992	5	3242.3	--	31.1	3273.4	--	3273.4
1993	4	2723.5	--	6.3	2729.8	--	2729.8
1994	3	2127.5	--	68.3	2195.8	--	2195.8
1995	3	2163.3	--	29.4	2192.7	--	2192.7
1996	2	1762.8	--	47.5	1810.3	--	1810.3
1997	4	2686.1	--	29.4	2715.5	--	2715.5
1998	4	2539.8	--	81.9	2621.7	--	2621.7
1999	3	1952.3	--	32.3	1984.6	--	1984.6
2000	3	1887.5	--	21.5	1909.0	--	1909.0
2001	3	2224.1	--	--	2224.1	--	2224.1
2002	3	2254.2	--	9.9	2264.1	--	2264.1
2003	2	1719.2	--	40.8	1760.0	--	1760.0
2004	3	2088.6	--	2.9	2091.5	--	2091.5
2005	3	2184.2	--	5.3	2189.5	--	2189.5
2006	--	293.7	--	--	293.7	--	293.7
2007	--	159.7	--	--	159.7	--	159.7
2008	--	50.7	--	--	50.7	--	50.7
2009	--	171.6	--	--	171.6	--	171.6
2010	1	1126.4	--	60.9	1187.3	--	1187.3
2011	2	1253.8	--	5.6	1259.4	--	1259.4
2012	1	845.6	--	57.0	902.6	--	902.6
2013	3	2083.8	--	13.9	2097.7	--	2097.7
2014	1	955.9	--	--	955.9	--	955.9
2015	2	1320.0	--	--	1320.0	--	1320.0
2016	3	1764.8	--	101.8	1866.6	--	1866.6
2017	2	1623.0	--	4.3	1627.3	--	1627.3
2018	2	1589.1	--	--	1589.1	--	1589.1
2019	3	2414.8	--	--	2414.8	--	2414.8
2020	2	1641.3	--	--	1641.3	--	1641.3
2021	3	2111.0	--	--	2111.0	--	2111.0
2022	3	2094.3	--	--	2094.3	--	2094.3
2023	3	2103.0	--	--	2103.0	--	2103.0

2024	2	1519.7	--	--	1519.7	--	1519.7
2025	--	11.7	--	--	11.7	--	11.7
2026	--	5.5	--	--	5.5	--	5.5
Subtotal	95	68116.5	--	1106.3	69222.8	--	69222.8

Cost Quantity Information 1611 | Procurement | Shipbuilding and Conversion, Navy		
Fiscal Year	**Quantity**	**End Item Recurring Flyaway (Aligned With Quantity) BY 1987 $M**
1984	--	--
1985	1	934.7
1986	--	--
1987	3	2344.3
1988	--	--
1989	4	2630.9
1990	5	3159.7
1991	4	2666.6
1992	5	3305.4
1993	4	2672.1
1994	3	2117.9
1995	3	2157.2
1996	2	1560.9
1997	4	2631.7
1998	4	2805.7
1999	3	2159.1
2000	3	2063.3
2001	3	2107.5
2002	3	2335.6
2003	2	1576.1
2004	3	2159.8
2005	3	2210.6
2006	--	--
2007	--	--
2008	--	--
2009	--	--
2010	1	1009.8
2011	2	1564.3
2012	1	863.8
2013	3	2068.7
2014	1	818.3
2015	2	1400.1
2016	3	2130.9
2017	2	1508.8
2018	2	1537.6
2019	3	2253.2
2020	2	1468.1
2021	3	2207.4
2022	3	2186.7

2023	3	2058.6
2024	2	1441.1
2025	--	--
2026	--	--
Subtotal	95	68116.5

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	TY $M Total Program
1986	4.6
1987	--
1988	14.7
1989	8.5
1990	--
1991	--
1992	--
1993	--
1994	--
1995	--
1996	--
1997	--
1998	13.2
1999	--
2000	--
2001	3.5
Subtotal	44.5

Annual Funding 1205 | MILCON | Military Construction, Navy and Marine Corps	
Fiscal Year	BY 1987 $M Total Program
1986	4.5
1987	--
1988	13.4
1989	7.5
1990	--
1991	--
1992	--
1993	--
1994	--
1995	--
1996	--
1997	--
1998	9.7
1999	--
2000	--
2001	2.5
Subtotal	37.6

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	10/30/1986	10/30/1986
Approved Quantity	9	9
Reference	Milestone IIIA Review Decision Memorandum	Milestone IIIA Review Decision Memorandum
Start Year	1985	1985
End Year	1989	1989

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Description
Japan	10/19/2017	133	6822.0	Date cited is date of last case sale.
Norway	2/6/2017	12	371.0	Date cited is date of last case sale.
Spain	5/5/2016	8	1288.0	Date cited is date of last case sale.
Australia	2/5/2016	9	1433.0	Date cited is date of last case sale.
South Korea	10/27/2015	14	2994.0	Date cited is date of last case sale.

Notes

Quantity numbers above reflect FMS cases, rather than ships. Cases are agreements between the United States and an eligible foreign country to provide defense articles, training, and/or services for purchase. Cases can be related to procurements (e.g., Ordalt or standard missile), training (e.g., AEGIS shipboard training or replacement crew training), and program management support (e.g., Combat System Ship Qualification Test). Case quantity numbers reflect all cases; open and closed.

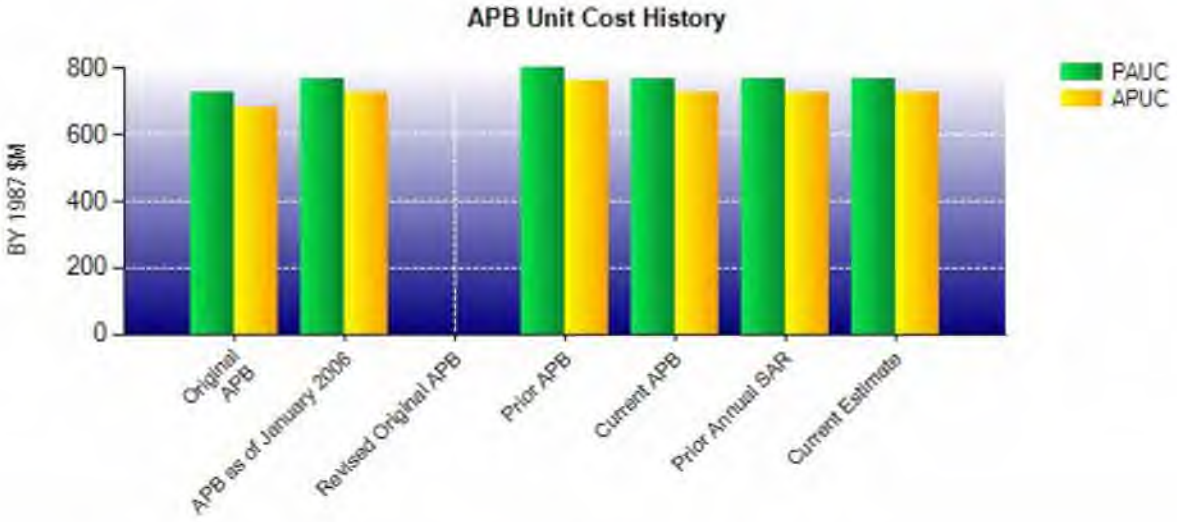
Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 1987 $M Current UCR Baseline (Aug 2017 APB)	BY 1987 $M Current Estimate (Dec 2017 SAR)	% Change
Program Acquisition Unit Cost			
Cost	68490.9	72802.8	
Quantity	89	95	
Unit Cost	769.561	766.345	-0.42
Average Procurement Unit Cost			
Cost	64949.2	69222.8	
Quantity	89	95	
Unit Cost	729.766	728.661	-0.15

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 1987 $M Original UCR Baseline (Feb 1988 APB)	BY 1987 $M Current Estimate (Dec 2017 SAR)	% Change
Program Acquisition Unit Cost			
Cost	16723.8	72802.8	
Quantity	23	95	
Unit Cost	727.122	766.345	+5.39
Average Procurement Unit Cost			
Cost	15745.3	69222.8	
Quantity	23	95	
Unit Cost	684.578	728.661	+6.44



APB Unit Cost History					
Item	Date	BY 1987 $M		TY $M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 1988	727.122	684.578	883.152	843.209
APB as of January 2006	Aug 2002	766.675	725.342	1031.612	981.022
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	May 2011	802.161	761.273	1178.841	1125.567
Current APB	Aug 2017	769.561	729.766	1248.664	1192.933
Prior Annual SAR	Dec 2016	769.561	729.766	1248.664	1192.933
Current Estimate	Dec 2017	766.345	728.661	1281.557	1228.588

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
874.674	-37.383	136.055	20.776	103.581	183.854	0.000	0.000	406.883	1281.557

Current SAR Baseline to Current Estimate (TY $M)									
Initial APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
833.613	-36.049	167.174	19.251	87.466	157.133	0.000	0.000	394.975	1228.588

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	Jun 1981	Jun 1981	Jun 1981	Jun 1981
Milestone II	May 1983	Dec 1983	Dec 1983	Dec 1983
Milestone III	Aug 1986	Aug 1986	N/A	N/A
IOC	N/A	N/A	Oct 1990	Feb 1993
Total Cost (TY $M)	10953.5	14910.6	20117.5	121747.9
Total Quantity	9	14	23	95
PAUC	1217.056	1065.043	874.674	1281.557

Cost Variance

Summary TY $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	916.6	19173.1	27.8	20117.5
Previous Changes				
Economic	-119.7	-3130.5	+0.1	-3250.1
Quantity	--	+68115.2	--	+68115.2
Schedule	+144.9	+1754.5	--	+1899.4
Engineering	+1514.2	+6960.0	+16.7	+8490.9
Estimating	+2459.6	+13298.7	-0.1	+15758.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+3999.0	+86997.9	+16.7	+91013.6
Current Changes				
Economic	-7.1	-294.2	--	-301.3
Quantity	--	+7786.6	--	+7786.6
Schedule	--	+74.3	--	+74.3
Engineering	--	+1349.3	--	+1349.3
Estimating	+79.0	+1628.9	--	+1707.9
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+71.9	+10544.9	--	+10616.8
Total Changes	+4070.9	+97542.8	+16.7	+101630.4
Current Estimate	4987.5	116715.9	44.5	121747.9

Summary BY 1987 $M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	979.8	15948.3	25.6	16953.7
Previous Changes				
Economic	--	--	--	--
Quantity	--	+38521.0	--	+38521.0
Schedule	+89.1	+562.0	--	+651.1
Engineering	+847.8	+3527.2	+11.9	+4386.9
Estimating	+1587.4	+6390.7	+0.1	+7978.2
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+2524.3	+49000.9	+12.0	+51537.2
Current Changes				
Economic	--	--	--	--
Quantity	--	+2999.5	--	+2999.5
Schedule	--	+112.9	--	+112.9
Engineering	--	+521.9	--	+521.9
Estimating	+38.3	+639.3	--	+677.6
Other	--	--	--	--
Support	--	--	--	--
Subtotal	+38.3	+4273.6	--	+4311.9
Total Changes	+2562.6	+53274.5	+12.0	+55849.1
Current Estimate	3542.4	69222.8	37.6	72802.8

Previous Estimate: December 2016

RDT&E	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-7.1
Revised estimate for development of future Aegis requirements. (Estimating)	+34.7	+71.9
Adjustment for current and prior escalation. (Estimating)	+0.9	+1.7
Revised estimates to reflect application of new outyear inflation indices. (Estimating)	+2.7	+5.4
RDT&E Subtotal	+38.3	+71.9

Procurement	$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-294.2
Total Quantity variance resulting from an increase of six DDGs from 89 to 95. (Subtotal)	+4415.4	+11462.6
Quantity variance resulting from an increase of six ships from 89 to 95. (Quantity)	(+2999.5)	(+7786.6)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)	(+112.9)	(+293.1)
Allocation to Engineering resulting from Quantity change. (Engineering) (QR)	(+447.7)	(+1162.3)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)	(+855.3)	(+2220.6)
Acceleration of procurement buy profile resulting in an increase of a total of six ships in FY 2019, FY 2021, FY 2022, FY 2023 and FY 2024. (Schedule) (QR)	0.0	-218.8
Additional funding to incorporate SPECTRAL Combat Direction Finder System for ships in FY 2020, FY 2021, FY 2022, and FY 2023 (Engineering)	+74.2	+187.0
Revised shipbuilding estimate for additional ships and Economic Order Quantity in FY 2019, FY 2021, FY 2022, FY 2023 and FY 2024. (Estimating)	-89.7	-244.4
Revised estimate to reflect refinement of outfitting and post delivery requirements. (Estimating) (QR)	-48.0	-147.0
Revised estimate of FY 2010 shipbuilding estimate. (Estimating)	-28.6	-57.1
Revised estimate to reflect refinement of FY 2023 shipbuilding estimates. (Estimating) (QR)	-122.9	-317.8
Revised estimate for economic rate adjustment which incorporates assumed efficiencies for new procurement buy. (Estimating)	-91.0	-226.0
Adjustment for current and prior escalation. (Estimating)	+50.0	+113.8
Revised estimates to reflect application of new outyear inflation indices. (Estimating)	+114.2	+286.8
Procurement Subtotal	+4273.6	+10544.9

(QR) Quantity Related

(U//FOUO) Contracts

(U//FOUO) General Notes

(b)(4)

Contract Identification

Appropriation: Procurement
Contract Name: DDG 114 Guided Missile Destroyer
Contractor: Huntington Ingalls Industries (HII)
Contractor Location: 1000 Access Road
Pascagoula, MS 39567
Contract Number: N00024-11-C-2307/114
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: September 26, 2011
Definitization Date: September 26, 2011

(U//FOUO) Contract Price

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
(b)(4)							

(U//FOUO) Target Price Change Explanation

(b)(4)

(U//FOUO) Contract Variance

Item	Cost Variance	Schedule Variance
(b)(4)		

(U//FOUO) Cost and Schedule Variance Explanations

(b)(4)

Notes

The DDG 114 (one of two FY 2011 ships) was a competitively bid annual procurement awarded to Ingalls on September 26, 2011.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: DDG 116 Guided Missile Destroyer
Contractor: General Dynamics (GD), Bath Iron Works (BIW)
Contractor Location: 700 Washington Street
Bath, ME 04530
Contract Number: N00024-11-C-2305/116
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: February 28, 2012
Definitization Date: September 26, 2011

[redacted] Contract Price

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
655.0	718.6	1	647.9	711.2	1	715.1	710.4

[redacted] Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated changes to the contract.

(U//FOUO) Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	-135.6	-7.9
Previous Cumulative Variances	-110.9	-12.3
Net Change	-24.7	+4.4

[redacted] Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to the previously reported loss of learning caused by the production gap.

The favorable net change in the schedule variance is due to improved production progress toward regaining schedule. DDG 116 launched in April 2017 with delivery planned in FY 2018.

Notes

The DDG 116 (FY 2012 ship) was awarded as an option to BIW on September 26, 2011. Option was exercised on February 28, 2012.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

This contract is more than 90% complete; therefore, this is the final report for this contract.

Contract Identification

Appropriation: Procurement
Contract Name: DDG 117 Guided Missile Destroyer
Contractor: Huntington Ingalls Industries (HII)
Contractor Location: 1000 Access Road
Pascagoula, MS 39567
Contract Number: N00024-13-C-2307
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 03, 2013
Definitization Date: June 03, 2013

[redacted] Contract Price

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
626.9	715.3	1	635.3	725.0	1	676.2	670.8

[redacted] Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated changes to the contract.

[redacted] Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	-84.3	-16.0
Previous Cumulative Variances	-75.5	-14.4
Net Change	-8.8	-1.6

[redacted] Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to shop performance.

The unfavorable net change in the schedule variance is due to shop performance.

Notes

DDG 117 (one of three FY 2013 ships) is part of the FY 2013 - FY 2017 Multi Year Procurement awarded on June 3, 2013.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

Contract Identification

Appropriation: Procurement
Contract Name: DDG 118 Guided Missile Destroyer
Contractor: General Dynamics (GD), Bath Iron Works (BIW)
Contractor Location: 700 Washington Street
Bath, ME 04530
Contract Number: N00024-13-C-2305
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 03, 2013
Definitization Date: June 03, 2013

[redacted] Contract Price

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
650.4	748.3	1	632.9	719.0	1	712.1	717.1

[redacted] Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated changes to the contract.

[redacted] Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	-100.5	-36.8
Previous Cumulative Variances	-68.1	-34.0
Net Change	-32.4	-2.8

[redacted] Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to a loss of learning caused by the previously reported production gap.

The unfavorable net change in the schedule variance is due to slow production progress and is expected to result in the shipbuilder having challenges in meeting contract dates for future milestones.

Notes

DDG 118 (one of three FY 2013 ships) is part of the FY 2013 - FY 2017 Multi Year Procurement awarded on June 3, 2013.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

Contract Identification

Appropriation: Procurement
Contract Name: DDG 119 Guided Missile Destroyer
Contractor: Huntington Ingalls Industries (HII)
Contractor Location: 1000 Access Road
Pascagoula, MS
Contract Number: N00024-13-C-2307/119
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 03, 2013
Definitization Date: June 03, 2014

[redacted] Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
643.6	706.1	1	649.5	712.7	1	672.8	683.6

[redacted] Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated changes to the contract.

(U//FOUO) Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	-51.6	+17.9
Previous Cumulative Variances	-42.4	+23.5
Net Change	-9.2	-5.6

[redacted] Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to shop performance not meeting planned targets, though trends show improvement from previous hulls under construction.

The unfavorable net change in the schedule variance is due to a slight decline in manufacturing progress to plan, although DDG 119 continues to be ahead of schedule. DDG 119 was Christened in November 2017.

Notes

DDG 119 (FY 2014 ship) is part of the FY 2013 - 2017 Multi Year Procurement awarded on June 3, 2013.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is For [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

Contract Identification

Appropriation: Procurement
Contract Name: DDG 120 Guided Missile Destroyer
Contractor: General Dynamics (GD), Bath Iron Works (BIW)
Contractor Location: 700 Washington Street
Bath, ME 04530
Contract Number: N00024-13-C-2305/120
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: March 14, 2014
Definitization Date: March 14, 2014

(U//FOUO) Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
675.0	784.6	1	661.8	737.2	1	711.0	724.2

(U//FOUO) Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated change to the contract.

(U//FOUO) Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	-27.6	-33.5
Previous Cumulative Variances	-8.1	-17.9
Net Change	-19.5	-15.6

(U//FOUO) Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to early manufacturing challenges.

The unfavorable net change in the schedule variance is due to slow production progress and is expected to result in the shipbuilder having challenges in meeting contract dates for future milestones.

Notes

DDG 120 (one of three FY 2013 ships) is part of the FY 2013- FY 2017 Multi Year Procurement awarded on June 3, 2013.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is For Official Use Only - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

Contract Identification

Appropriation: Procurement
Contract Name: DDG 121 Guided Missile Destroyer
Contractor: Huntington Ingalls Industries (HII)
Contractor Location: 1000 Access Road
Pascagoula, MS
Contract Number: N00024-13-C-2307/121
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 03, 2013
Definitization Date: March 27, 2015

[redacted] Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
657.1	749.8	1	663.4	757.1	1	683.3	699.9

[redacted] Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated changes to the contract.

(U//FOUO) Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	-25.7	+44.9
Previous Cumulative Variances	-23.1	+39.0
Net Change	-2.6	+5.9

[redacted] Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to previously reported shop performance. Cost performance is trending positively relative to DDG 117 and 119 at the same point in construction.

The favorable net change in the schedule variance is due to improved manufacturing progress compared to earlier hulls and the ship continues to be ahead of schedule. DDG 121 Lay Keel milestone was achieved in February 2017.

Notes

DDG 121 (FY 2015 ship) is part of the FY 2013 - 2017 Multiyear Procurement awarded on June 3, 2013.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is For [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

Contract Identification

Appropriation: Procurement
Contract Name: DDG 122 Guided Missile Destroyer
Contractor: General Dynamics (GD), Bath Iron Works (BIW)
Contractor Location: 700 Washington Street
Bath, ME 04530
Contract Number: N00024-13-C-2305/122
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 03, 2013
Definitization Date: June 03, 2013

Contract Price							
Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
665.9	758.8	1	667.2	760.2	1	685.4	721.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated changes to the contract.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	+3.7	-24.9
Previous Cumulative Variances	--	--
Net Change	+3.7	-24.9

Cost and Schedule Variance Explanations

The favorable cumulative cost variance is due to performance in the early stage of ship construction.

The unfavorable cumulative schedule variance is due to work not being completed as planned in the early stages of construction. The ship started fabrication in September 2017, prior to the contract date.

Notes

DDG 122 (FY 2015 ship) is part of the FY 2013 - 2017 Multiyear Procurement awarded on June 3, 2013.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is For [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

Contract Identification

Appropriation: Procurement
Contract Name: DDG 123 Guided Missile Destroyer
Contractor: Huntington Ingalls Industries (HII)
Contractor Location: 100 Access Road
Pascagoula, MS 39567
Contract Number: N00024-13-C-2307/123
Contract Type: Fixed Price Incentive(Firm Target) (FPIF)
Award Date: June 03, 2013
Definitization Date: March 29, 2016

[redacted] Contract Price

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price At Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
669.5	763.9	1	672.0	766.8	1	694.8	713.4

[redacted] Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to negotiated change to the contract.

[redacted] Contract Variance

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/24/2017)	-14.2	+65.8
Previous Cumulative Variances	-7.8	+4.8
Net Change	-6.4	+61.0

[redacted] Cost and Schedule Variance Explanations

The unfavorable net change in the cost variance is due to previously reported shop performance. However, cost performance is trending positively relative to DDGs 117, 119, and 121 at the same point in construction.

The favorable net change in the schedule variance is due to early production efforts. DDG 123 started fabrication in January 2017, early to contract date. Lay Keel occurred in November 2017.

Notes

DDG 123 (FY 2016 ship) is part of the FY 2013-2017 Multiyear Procurement awarded on June 3, 2013.

Current Contract Price ($M), Estimated Price at Completion ($M) and Cost and Schedule Variance for this contract is For [redacted] - Exempt from FOIA release under 5 U.S.C. 552(b)(4).

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	65	65	95	68.42%
Total Program Quantity Delivered	65	65	95	68.42%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	121747.9	Years Appropriated	39
Expended to Date	73481.9	Percent Years Appropriated	82.98%
Percent Expended	60.36%	Appropriated to Date	91038.9
Total Funding Years	47	Percent Appropriated	74.78%

The above data is current as of February 12, 2018.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	January 19, 2018
Source of Estimate:	NAVSEA 05C
Quantity to Sustain:	95
Unit of Measure:	Ship
Service Life per Unit:	40.00 Years
Fiscal Years in Service:	FY 1992 - FY 2070

Estimates are based on a service life of 35 years for the 28 Flight I and Flight II ships and 40 years for the 67 Flight IIA and Flight III ships.

Sustainment Strategy

The DDG 51 sustainment strategy leverages Third Party Planning contracts, Indefinite Delivery/Indefinite Quantity (IDIQ) multi-award contracts within a ship's homeport for Chief of Naval Operations (CNO) availabilities less than ten months, single award coast-wide Firm Fixed Priced Contracts for CNO availabilities greater than ten months, and Coast Wide IDIQ multiple award contracts for CNO availabilities greater than ten months. The program provides Integrated Logistics Support oversight and guidance to Participating Acquisition Resource Managers that develop various sustainment approaches for combat systems and Communications, Command, Control, Computers, and Intelligence.

Antecedent Information

The Antecedent System is the CG 47 class of ships. The CG 47 class was used since it is the only other ship class with the AEGIS Weapon System installed. The CG 47 estimates were derived using the Naval Visibility And Management of Operating and Support Costs (VAMOSC) database. CG 47 estimates are based on 27 ships. The years of data used for the CG 47 class are FY 1984-2017.

Annual O&S Costs BY1987 $M		
Cost Element	**DDG 51 Average Annual Cost Per Ship**	**CG 47 (Antecedent) Average Annual Cost Per Ship**
Unit-Level Manpower	10.042	10.129
Unit Operations	4.239	4.976
Maintenance	7.005	7.926
Sustaining Support	1.261	1.282
Continuing System Improvements	4.519	3.787
Indirect Support	6.529	7.363
Other	0.000	0.000
Total	33.595	35.463

Item	Total O&S Cost $M			
	DDG 51			CG 47 (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	113493.3	124842.6	122957.5	32732.3
Then Year	326443.0	N/A	365036.1	N/A

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

The DDG 51 APB is for 89 ships, while the current estimate is for 95 ships.

Equation to Translate Annual Cost to Total Cost

DDG 51 (Ship Quantity X Avg. Annual Cost per Ship, per Year X Ship Service Life)
(28 ships X $33.595M X 35 years) + (67 ships X $33.595M X 40 years) = $122,957.5M

CG 47 (Ship quantity X Avg. Annual Cost per Ship, per Year X Ship Service Life)
(11 ships X $35.463M X 40 years) + (11 ships X $35.463M X 35 years) + (1 ship X $35.463M X 21 years) + (2 ships X $35.463M X 20 years) + (1 ship X $35.463M X 19 years) + (1 ship X $35.463M X 18 years) = $32,732.3M

O&S Cost Variance		
Category	**BY 1987 $M**	**Change Explanations**
Prior SAR Total O&S Estimates - Dec 2016 SAR	111444.1	
Programmatic/Planning Factors	11517.0	Addition of six ships
Cost Estimating Methodology	0.0	
Cost Data Update	-3.6	Updated per ship average based on VAMOSC actual data as of January 2018.
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
Total Changes	11513.4	
Current Estimate	122957.5	

The O&S cost estimate includes mid-life modernization for Flight III ships.

Disposal Estimate Details

Date of Estimate: January 19, 2018

Source of Estimate: NAVSEA 05C

Disposal/Demilitarization Total Cost (BY 1987 $M): Total costs for disposal of all Ship are 244.8

The DDG 51 Class remains in full rate production and continues to be upgraded in new construction. The oldest of the class are approaching mid service life now and many are being upgraded with newer technologies which will inevitably change the cost of inactivation and disposal for the class. The ship disposal methodology has been updated to reflect the NAVSEA Update of Conventional Surface Ship Environmental and Disposal Liability Estimate (October 2017).